a plate having a generally rectangular configuration with a first end, a second end, sides, and a length sufficient to span a disc space and overlap portions of at least two adjacent cervical vertebral bodies, said plate having:

rounded lobes at each corner of said generally rectangular configuration and having rounded lobes on said sides between said first and second ends;

a lower surface for placement against the cervical vertebral bodies and an upper surface opposite to said lower surface;

a bi-concave curvature for conforming to the anterior aspect of the cervical spine in lordosis, said bi-concave curvature having a longitudinal concave curvature along the longitudinal axis of said plate and a transverse concave curvature along the transverse axis of said plate;

a plurality of bone screw receiving holes extending through said plate from said upper surface to said lower surface and having a reduced diameter portion near said lower surface, a respective one of said plurality of bone screw receiving holes located at each of said rounded lobes such that said plate has a first pair of said bone screw receiving holes located at said first end of said plate corresponding to a first of the adjacent vertebral bodies, a second pair of said bone screw receiving holes corresponding to a second of the adjacent vertebral bodies, and a third pair of said bone screw receiving holes corresponding to a third of the adjacent vertebral bodies; and

a plurality of locking elements each adapted to lock to said plate only one each a bone screw placed in said bone screw receiving holes, each of said plurality of locking elements coaxially engageable in a respective one of said

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bone screw receiving holes to lock one of said bone screws to said plate, each of said locking elements having a bottom surface and a top surface with a depression for engaging a tool used to lock and unlock said locking element to said plate, said bottom surface configured to fit over the bone screw and bear against the bone screw.

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285. (Amended) The plate system of claim 282 in which said plate has a length longer than said width, and said longitudinal concave curvature has a radius of curvature greater than 15 cm and less than 25 cm.

286. (Amended) The plate system of claim 282 in which said plate has a length longer than said width.

287. (Amended) The plate system of claim 282 in which said transverse concave curvature has a radius of curvature in the order of approximately 16 to 21 mm.

Please add the following new claims:

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--538. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent cervical vertebral bodies, said plate having a lower surface for placement against the vertebral bodies and an upper surface opposite said lower surface, said lower surface being concave along a substantial portion of the longitudinal axis of said plate;

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at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end;

at least two bone screw receiving holes extending through said plate from said upper surface to said lower surface, each of said bone screw receiving holes having a central longitudinal axis and being adapted to receive one of said bone screws to attach said plate to the vertebral bodies, each of said bone screw receiving holes and said bone screws being configured to cooperate with each other to permit the central longitudinal axis of one of said bone screws to fixedly align with the central longitudinal axis of one of said bone screw receiving holes, at least a first of said bone screw receiving holes adapted to overlie a first of the vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the vertebral bodies; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each having a central longitudinal axis adapted to be substantially aligned with both the central longitudinal axis of said bone screw receiving hole and the central longitudinal axis of said bone screw when inserted in said bone screw receiving hole to retain said bone screw to said plate.

539. The plate system of claim 538, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

540. The plate system of claim 538, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

541. The plate system of claim 538, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

542. The plate system of claim 538, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

543. The plate system of claim 538, wherein said access opening is a slot.

544. The plate system of claim 538, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

545. The plate system of claim 538, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

546. The plate system of claim 538, wherein said at least one locking element is at least in part circular.

547. The plate system of claim 538, wherein said at least one locking element has at least one wedged surface.

548. The plate system of claim 538, wherein said at least one locking element comprises at least one of a screw and a cap.

549. The plate system of claim 538, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

550. The plate system of claim 538, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

551. The plate system of claim 538, wherein said trailing end of said bone screw has an upper surface that is at least in part curved.

552. The plate system of claim 538, wherein said bone screw has an upper surface that is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

553. The plate system of claim 538, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

554. The plate system of claim 538, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

555. The plate system of claim 538, wherein at least one of said bone screws is configured to be self-tapping.

556. The plate system of claim 538, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank

therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

557. The plate system of claim 556, wherein said shank is tapered along at least a portion of its length.

558. The plate system of claim 538, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

559. The plate system of claim 538, wherein at least one of said bone screw receiving holes is threaded.

560. The plate system of claim 538, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

561. The plate system of claim 538, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

562. The plate system of claim 561, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

563. The plate system of claim 538, in combination with an interbody implant.

564. The plate system of claim 538, in combination with a bone graft.

565. The plate system of claim 538, in combination with a bone growth promoting material.

566. The plate system of claim 565, wherein said bone growth promoting material is at least in part other than bone.

567. The plate system of claim 565, wherein said bone growth promoting material is at least in part bone.

568. The plate system of claim 565, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

569. The plate system of claim 538, wherein at least a portion of said lower surface comprises a bone ingrowth material.

570. The plate system of claim 538, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

571. The plate system of claim 538, in combination with a bioresorbable material.

572. The plate system of claim 538, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.

573. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent vertebral bodies, said plate having a lower surface for placement against the vertebral bodies and an upper surface opposite said lower surface, said lower surface of said plate being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end, said trailing end having a top surface oriented toward said upper surface of said plate and a bottom surface opposite said top surface oriented toward said lower surface of said plate;

at least two bone screw receiving holes extending through said plate from said upper surface to said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the vertebral bodies, each of said bone screw receiving holes being configured to prevent said bottom surface of said trailing end of said bone screw from protruding below said lower surface of said plate; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each being coaxially engageable at least in part within only one of said bone screw receiving holes to retain said one of said bone screws to said plate.

574. The plate system of claim 573, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

575. The plate system of claim 573, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

576. The plate system of claim 573, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

577. The plate system of claim 573, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

578. The plate system of claim 573, wherein said access opening is a slot.

579. The plate system of claim 573, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

580. The plate system of claim 573, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

581. The plate system of claim 573, wherein said at least one locking element is at least in part circular.

582. The plate system of claim 573, wherein said at least one locking element has at least one wedged surface.

583. The plate system of claim 573, wherein said at least one locking element comprises at least one of a screw and a cap.

584. The plate system of claim 573, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

585. The plate system of claim 573, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

586. The plate system of claim 573, wherein said upper surface of said trailing end of said bone screw is at least in part curved.

587. The plate system of claim 573, wherein said upper surface of said bone screw is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

588. The plate system of claim 573, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

589. The plate system of claim 573, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

590. The plate system of claim 573, wherein at least one of said bone screws is configured to be self-tapping.

591. The plate system of claim 573, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

592. The plate system of claim 591, wherein said shank is tapered along at least a portion of its length.

593. The plate system of claim 573, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

594. The plate system of claim 573, wherein at least one of said bone screw receiving holes is threaded.

595. The plate system of claim 573, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

596. The plate system of claim 573, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

597. The plate system of claim 596, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

598. The plate system of claim 573, in combination with an interbody implant.

599. The plate system of claim 573, in combination with a bone graft.

600. The plate system of claim 573, in combination with a bone growth promoting material.

601. The plate system of claim 600, wherein said bone growth promoting material is at least in part other than bone.

602. The plate system of claim 600, wherein said bone growth promoting material is at least in part bone.

603. The plate system of claim 600, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

604. The plate system of claim 573, wherein at least a portion of said lower surface comprises a bone ingrowth material.

605. The plate system of claim 573, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

606. The plate system of claim 573, in combination with a bioresorbable material.

607. The plate system of claim 573, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.

608. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent vertebral bodies, said plate having a lower surface for placement against the vertebral bodies and an upper surface opposite said lower surface, said lower surface being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each

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of said bone screws having a leading end for insertion into the vertebral body and a trailing end opposite said leading end, at least one of said bone screws including proximate said trailing end a maximum cross sectional dimension transverse to the central longitudinal axis of said bone screw, said bone screw having a contact surface area at the maximum cross sectional dimension;

at least two bone screw receiving holes extending through said plate from said upper surface through said lower surface, each of said bone screw receiving holes having a central longitudinal axis and being adapted to receive one of said bone screws to attach said plate to the vertebral bodies; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each adapted to coaxially engage only a respective one of said bone screw receiving holes and to contact said contact surface area of a respective one each of said bone screws so as to retain said respective one of said bone screws to said plate.

609. The plate system of claim 608, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

610. The plate system of claim 608, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

611. The plate system of claim 608, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

612. The plate system of claim 608, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

613. The plate system of claim 608, wherein said access opening is a slot.

614. The plate system of claim 608, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

615. The plate system of claim 608, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

616. The plate system of claim 608, wherein said at least one locking element is at least in part circular.

617. The plate system of claim 608, wherein said at least one locking element has at least one wedged surface.

618. The plate system of claim 608, wherein said at least one locking element comprises at least one of a screw and a cap.

619. The plate system of claim 608, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

620. The plate system of claim 608, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

621. The plate system of claim 608, wherein said upper surface of said trailing end of said bone screw is at least in part curved.

622. The plate system of claim 608, wherein said upper surface of said bone screw is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

623. The plate system of claim 608, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

624. The plate system of claim 608, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

625. The plate system of claim 608, wherein at least one of said bone screws is configured to be self-tapping.

626. The plate system of claim 608, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

627. The plate system of claim 626, wherein said shank is tapered along at least a portion of its length.

628. The plate system of claim 608, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

629. The plate system of claim 608, wherein at least one of said bone screw receiving holes is threaded.

630. The plate system of claim 608, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

631. The plate system of claim 608, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

632. The plate system of claim 631, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

633. The plate system of claim 608, in combination with an interbody implant.

634. The plate system of claim 608, in combination with a bone graft.

635. The plate system of claim 608, in combination with a bone growth promoting material.

636. The plate system of claim 635, wherein said bone growth promoting material is at least in part other than bone.

637. The plate system of claim 635, wherein said bone growth promoting material is at least in part bone.

638. The plate system of claim 635, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

639. The plate system of claim 608, wherein at least a portion of said lower surface comprises a bone ingrowth material.

640. The plate system of claim 608, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

641. The plate system of claim 608, in combination with a bioresorbable material.

642. The plate system of claim 608, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.

643. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent cervical vertebral bodies, a lower surface for contacting the vertebral bodies and an upper surface opposite said lower surface, said lower surface being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end, said trailing end including a lower

surface generally transverse to the central longitudinal axis of said screw;

at least two bone screw receiving holes extending through said plate from said upper surface through said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the cervical vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the cervical vertebral bodies, at least one of said bone screw receiving holes having a reduced dimension proximate said lower surface of said plate to form a seat, said seat having a surface being at least in part flat and adapted to contact said lower surface of said trailing end of one of said bone screws; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted in one each of said at least two bone screw receiving holes, said locking elements each adapted to coaxially engage only one each of said bone screw receiving holes and to at least a portion of only one of said bone screws so as to retain a respective one of said bone screws to said plate.

644. The plate system of claim 643, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

645. The plate system of claim 643, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

646. The plate system of claim 643, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

647. The plate system of claim 643, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

648. The plate system of claim 643, wherein said access opening is a slot.

649. The plate system of claim 643, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

650. The plate system of claim 643, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

651. The plate system of claim 643, wherein said at least one locking element is at least in part circular.

652. The plate system of claim 643, wherein said at least one locking element has at least one wedged surface.

653. The plate system of claim 643, wherein said at least one locking element comprises at least one of a screw and a cap.

654. The plate system of claim 643, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

655. The plate system of claim 643, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

656. The plate system of claim 643, wherein said upper surface of said trailing end of said bone screw is at least in part curved.

657. The plate system of claim 643, wherein said upper surface of said bone screw is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

658. The plate system of claim 643, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

659. The plate system of claim 643, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

660. The plate system of claim 643, wherein at least one of said bone screws is configured to be self-tapping.

661. The plate system of claim 643, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

662. The plate system of claim 661, wherein said shank is tapered along at least a portion of its length.

663. The plate system of claim 643, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

664. The plate system of claim 643, wherein at least one of said bone screw receiving holes is threaded.

665. The plate system of claim 643, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

666. The plate system of claim 643, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

667. The plate system of claim 666, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

668. The plate system of claim 643, in combination with an interbody implant.

669. The plate system of claim 643, in combination with a bone graft.

670. The plate system of claim 643, in combination with a bone growth promoting material.

671. The plate system of claim 670, wherein said bone growth promoting material is at least in part other than bone.

672. The plate system of claim 670, wherein said bone growth promoting material is at least in part bone.

673. The plate system of claim 670, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

674. The plate system of claim 643, wherein at least a portion of said lower surface comprises a bone ingrowth material.

675. The plate system of claim 643, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

676. The plate system of claim 643, in combination with a bioresorbable material.

677. The plate system of claim 643, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.

678. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent vertebral bodies, said plate having a lower surface for placement against the vertebral bodies and an upper surface opposite said lower surface, said lower surface of said plate being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end, said trailing end having a top

surface oriented toward said upper surface of said plate and a bottom surface opposite said top surface oriented toward said lower surface of said plate;

at least two bone screw receiving holes extending through said plate from said upper surface to said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the vertebral bodies, each of said bone screw receiving holes being configured to prevent said bottom surface of said trailing end of said bone screw from protruding below said lower surface of said plate; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each having a central longitudinal axis that passes through one of said bone screw receiving holes, respectively, to retain said one of said bone screws to said plate.

679. The plate system of claim 678, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

680. The plate system of claim 678, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

681. The plate system of claim 678, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

682. The plate system of claim 678, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for

movement of at least one vertebral body toward another vertebral body during installation of said plate.

683. The plate system of claim 678, wherein said access opening is a slot.

684. The plate system of claim 678, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

685. The plate system of claim 678, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

686. The plate system of claim 678, wherein said at least one locking element is at least in part circular.

687. The plate system of claim 678, wherein said at least one locking element has at least one wedged surface.

688. The plate system of claim 678, wherein said at least one locking element comprises at least one of a screw and a cap.

689. The plate system of claim 678, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

690. The plate system of claim 678, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

691. The plate system of claim 678, wherein said upper surface of said trailing end of said bone screw is at least in part curved.

692. The plate system of claim 678, wherein said upper surface of said bone screw is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

693. The plate system of claim 678, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

694. The plate system of claim 678, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

695. The plate system of claim 678, wherein at least one of said bone screws is configured to be self-tapping.

696. The plate system of claim 678, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

697. The plate system of claim 696, wherein said shank is tapered along at least a portion of its length.

698. The plate system of claim 678, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

699. The plate system of claim 678, wherein at least one of said bone screw receiving holes is threaded.

700. The plate system of claim 678, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

701. The plate system of claim 678, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

702. The plate system of claim 701, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

703. The plate system of claim 678, in combination with an interbody implant.

704. The plate system of claim 678, in combination with a bone graft.

705. The plate system of claim 678, in combination with a bone growth promoting material.

706. The plate system of claim 705, wherein said bone growth promoting material is at least in part other than bone.

707. The plate system of claim 706, wherein said bone growth promoting material is at least in part bone.

708. The plate system of claim 706, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

709. The plate system of claim 678, wherein at least a portion of said lower surface comprises a bone ingrowth material.

710. The plate system of claim 678, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

711. The plate system of claim 678, in combination with a bioresorbable material.

712. The plate system of claim 678, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.

713. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent cervical vertebral bodies, a lower surface for placement against the cervical vertebral bodies, said lower surface being concave along a substantial portion of the longitudinal axis of said plate, and an upper surface opposite said lower surface;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two cervical vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the cervical spine and a trailing end opposite said leading end, at least one of said bone screws including proximate said trailing end a contact surface area at least in part in a plane that crosses the central longitudinal axis of said bone screw;

at least two bone screw receiving holes extending through said plate from said upper surface through said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the cervical vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the cervical vertebral bodies, each of said bone screw receiving holes having a central longitudinal axis and being adapted to receive one of said bone screws to attach said plate to the cervical spine; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted in one each of said bone screw receiving holes, said locking elements each contacting said contact surface area of only one of said bone screws so as to retain said one of said bone screws to said plate.

714. The plate system of claim 713, wherein said lower surface of said plate is concave at least in part transverse to the longitudinal axis of said plate.

715. The plate system of claim 713, wherein said lower surface of said plate is flat at least in part transverse to the longitudinal axis of said plate.

716. The plate system of claim 713, wherein at least one end of said plate is configured to cooperatively engage a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

717. The plate system of claim 713, further comprising an access opening in said plate for accessing at least one vertebral body with a compression tool for movement of at least one vertebral body toward another vertebral body during installation of said plate.

718. The plate system of claim 713, wherein said access opening is a slot.

719. The plate system of claim 713, wherein at least a portion of said lower surface of said plate is roughened to promote the growth of bone along said lower surface.

720. The plate system of claim 713, wherein said at least one locking element is generally circular and said central longitudinal axis of said at least one locking element is the rotational axis of said at least one locking element, said rotational axis being coaxial to the central longitudinal axis of one of said bone screw receiving holes when said at least one locking element is inserted in said bone screw receiving hole.

721. The plate system of claim 713, wherein said at least one locking element is at least in part circular.

722. The plate system of claim 713, wherein said at least one locking element has at least one wedged surface.

723. The plate system of claim 713, wherein said at least one locking element comprises at least one of a screw and a cap.

724. The plate system of claim 713, wherein said at least one locking element comprises at least one of a camming surface, a ramped surface, and a threaded portion.

725. The plate system of claim 713, wherein said at least one locking element does not substantially protrude above said upper surface of said plate.

726. The plate system of claim 713, wherein said upper surface of said trailing end of said bone screw is at least in part curved.

727. The plate system of claim 713, wherein said upper surface of said bone screw is at least in part in a plane that crosses the longitudinal axis of said bone screw, said at least one locking element contacting said upper surface of said bone screw.

728. The plate system of claim 713, wherein said contact surface area of said at least one bone screw is at least in part in a plane that is perpendicular to the longitudinal axis of said bone screw.

729. The plate system of claim 713, wherein said contact surface area of said at least one bone screw is at least in part arcuate.

730. The plate system of claim 713, wherein said contact surface area of said at least one bone screw is at least in part flat.

731. The plate system of claim 713, wherein said contact surface area of said at least one bone screw is at least in part at an angle to the central longitudinal axis of said bone screw.

732. The plate system of claim 713, wherein the trailing end of at least one of said bone screws is configured to cooperate with said at least one locking element to lock said bone screw to said plate.

733. The plate system of claim 713, wherein at least one of said bone screws has a head dimensioned to achieve an interference fit with a respective one of said bone screw receiving holes.

734. The plate system of claim 713, wherein at least one of said bone screws is configured to be self-tapping.

735. The plate system of claim 713, wherein at least one of said bone screws has a tip at said leading end and a head proximate said trailing end, a shank therebetween, and a thread having a substantially constant crest diameter along a substantial portion of the length of said shank.

736. The plate system of claim 735, wherein said shank is tapered along at least a portion of its length.

737. The plate system of claim 713, wherein at least one of said bone screws has a thread having a thin profile and a sharp crest.

738. The plate system of claim 713, wherein at least one of said bone screw receiving holes is threaded.

739. The plate system of claim 713, wherein at least one of said bone screw receiving holes is configured to form an interference fit with one of said bone screws.

740. The plate system of claim 713, wherein at least a first pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a first cervical vertebral body and at least a second pair of said bone screw receiving holes is oriented in said plate to overlie the anterior aspect of a second cervical vertebral body.

741. The plate system of claim 740, wherein said bone screw receiving holes of at least one of said first and second pairs of bone screw receiving holes are generally arranged in side-by-side pairs.

742. The plate system of claim 713, in combination with an interbody implant.

743. The plate system of claim 713, in combination with a bone graft.

744. The plate system of claim 713, in combination with a bone growth promoting material.

745. The plate system of claim 744, wherein said bone growth promoting material is at least in part other than bone.

746. The plate system of claim 744, wherein said bone growth promoting material is at least in part bone.

747. The plate system of claim 744, wherein said bone growth promoting material includes at least one of bone morphogenetic protein, hydroxyapatite, and hydroxyapatite tricalcium phosphate.

748. The plate system of claim 713, wherein at least a portion of said lower surface comprises a bone ingrowth material.

749. The plate system of claim 713, wherein at least a portion of said lower surface of said plate includes a bone ingrowth surface.

750. The plate system of claim 713, in combination with a bioresorbable material.

751. The plate system of claim 713, wherein at least a portion of one of said plate, said at least one locking element, and said bone screws is a bioresorbable material.--

REMARKS

Applicant has amended claims 282, 285, 286, and 287, cancelled claims 200-281, 288, and 289, and added new claims 538-751 to further define Applicant's claimed invention.